

# PATENT ABSTRACTS OF JAPAN

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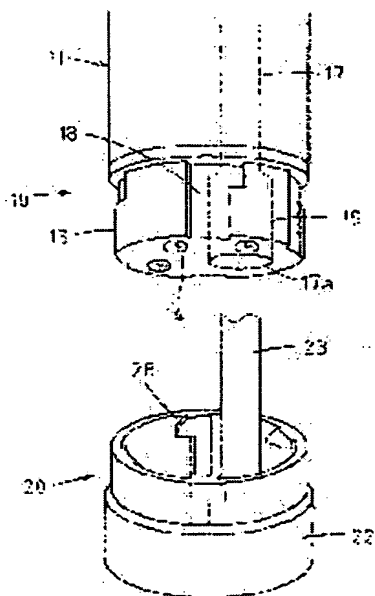
(21)Application number : 2002-296913

(71)Applicant : PENTAX CORP

(22)Date of filing : 10.10.2002

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## (54) ENDOSCOPE WITH JACKET SHEATH



(57)Abstract:

PROBLEM TO BE SOLVED: To provide an endoscope with a jacket sheath capable of surely engaging / disengaging a falling prevention mechanism for controlling the falling of the tip part of a flexible insertion part from the inside of the tip part of the jacket sheath without damaging a member.

SOLUTION: The tip part 22 of the jacket sheath 20 is constituted so as to be rotated in a prescribed range around an axis to the tip part 13 of the flexible insertion part 11. Also, a channel deformation space 19 for a part near the tip of a channel tube 23 to be turned while being elastically deformed following the rotating operation is provided. By rotating the tip part 22 of the jacket sheath 20 in the prescribed range around the axis to the tip part 13 of the flexible

insertion part 11, the falling prevention mechanisms 18 and 28 are engaged and disengaged.

## CLAIMS

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### [Claim(s)]

#### [Claim 1]

Insertion arrangement of the channel tube is carried out into the mantle sheath covered by the flexible insertion section of an endoscope free [ attachment and detachment ], and the tip of the above-mentioned channel tube fixes at the tip of the above-mentioned mantle sheath. While the guide slot where it lets the above-mentioned channel tube pass in the condition that the above-mentioned mantle sheath was covered by the above-mentioned flexible insertion section is established in the above-mentioned flexible insertion section In the endoscope with a mantle sheath with which it escaped for regulating that the amount of [ of the above-mentioned flexible insertion section ] point slips out out of the point part of the above-mentioned mantle sheath, and the stop device was established,

While constituting a part for the point of the above-mentioned mantle sheath in the predetermined range pivotable in the circumference of an axis to a part for the point of the above-mentioned flexible insertion section The channel deformation space for rotating, while the rotation actuation is followed and the section near the tip of the above-mentioned channel tube carries out elastic deformation is prepared. The endoscope with a mantle sheath characterized by making it the above-mentioned omission stop device engage and release by rotating a part for the point of the above-mentioned mantle sheath in the above-mentioned predetermined range to the circumference of an axis to a part for the point of the above-mentioned flexible insertion section.

#### [Claim 2]

The condition that the above-mentioned mantle sheath is covered by the above-mentioned flexible insertion section, and the above-mentioned omission stop device is engaged with the elasticity of the above-mentioned channel tube in the state of a no-load is maintained. By rotating a part for the point of the above-mentioned mantle sheath in the above-mentioned predetermined range to the circumference of an axis to a part for the point of the above-mentioned flexible insertion section, carrying out elastic deformation of the above-mentioned channel tube in the above-mentioned channel deformation space The endoscope with a mantle sheath according to claim 1 which will be in the condition that engagement of the above-mentioned omission stop device separates, and it can slip out of a part for the point of the above-mentioned flexible insertion section from the inside of the point part of the above-mentioned mantle sheath.

#### [Claim 3]

The endoscope with a mantle sheath according to claim 1 or 2 with which the above-mentioned omission stop device has the gutter of the shape of L character formed in the external surface for a point of the above-mentioned flexible insertion section, and \*\*\*\*\* formed in the inside for a point of the above-mentioned mantle sheath free [ engaging and releasing to the gutter ].

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## DETAILED DESCRIPTION

### [Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the endoscope with a mantle sheath which has a mantle sheath for preventing that the flexible insertion section of an endoscope is polluted.

[0002]

[Description of the Prior Art]

What is necessary is to cover a mantle sheath in the flexible insertion section of an endoscope, and just to exchange the mantle sheath for every one endoscopy, in order to make it infection between patients not occur through an endoscope in endoscopy.

[0003]

And in order to enable it to use treatment implements in the case of endoscopy, it is constituted so that the guide slot which prepared the channel tube for letting treatment implements pass in the mantle sheath, and was established in the flexible insertion section side may let a channel tube pass.

[0004]

It is necessary to make it the amount of [ of the mantle sheath covered there ] point not move in such an endoscope with a mantle sheath to a part for the point of the flexible insertion section by which the observation port etc. is arranged during endoscopy.

[0005]

Then, conventionally, become, escape from the pawl device for regulating that the amount of [ of the flexible insertion section ] point slips out to back out of the tip of a mantle sheath, and a stop device is established. In case the flexible insertion section was extracted from a mantle sheath after endoscopy termination, he was trying for engagement of a pawl device to separate by crushing from an outside the point material of the mantle sheath formed in the shape of a cap, and making elastic deformation carry out in the direction of a path (for example, the patent reference 1, patent reference 2).

[0006]

[Patent reference 1]

JP,3-193023,A

[Patent reference 2]

JP,7-33301,U

[0007]

[Problem(s) to be Solved by the Invention]

However, when removing engagement of a pawl device and elastic deformation of the point material of the mantle sheath formed in the shape of a cap was crushed and carried out from the outside, there was a case a force degree may not be known and engagement not only may not separate well, but where the force entered too much and a part for the point of a mantle sheath was damaged.

[0008]

Then, it escapes from this invention for regulating that the amount of [ of the flexible insertion section ] point slips out out of the point part of a mantle sheath, and it aims a stop device at certain and offering the endoscope with a mantle sheath which damages a member and which can be made to be afraid and engage and release.

[0009]

[Means for Solving the Problem]

In order to attain the above-mentioned purpose, the endoscope with a mantle sheath of this

invention Insertion arrangement of the channel tube is carried out into the mantle sheath covered by the flexible insertion section of an endoscope free [ attachment and detachment ], and the tip of a channel tube fixes at the tip of a mantle sheath. While the guide slot where it lets a channel tube pass in the condition that the mantle sheath was covered by the flexible insertion section is established in the flexible insertion section In the endoscope with a mantle sheath with which it escaped for regulating that the amount of [ of the flexible insertion section ] point slips out out of the point part of a mantle sheath, and the stop device was established While constituting a part for the point of a mantle sheath in the predetermined range pivotable in the circumference of an axis to a part for the point of the flexible insertion section The channel deformation space for rotating, while the rotation actuation is followed and the section near the tip of a channel tube carries out elastic deformation is prepared. It escapes by rotating a part for the point of a mantle sheath in the predetermined range to the circumference of an axis to a part for the point of the flexible insertion section, and is made for a stop device to engage and release.

[0010]

In addition, the condition that a mantle sheath is covered by the flexible insertion section, and falls out with the elasticity of a channel tube in the state of a no-load, and a stop device is engaged is maintained. By rotating a part for the point of a mantle sheath in the predetermined range to the circumference of an axis to a part for the point of the flexible insertion section, carrying out elastic deformation of the channel tube in channel deformation space You may make it be in the condition that it escapes, engagement of a stop device separates and it can slip out of a part for the point of the flexible insertion section from the inside of the point part of a mantle sheath.

[0011]

And you may have the gutter of the shape of L character by which the stop device was formed in the external surface for a point of the flexible insertion section from which it escapes, and \*\*\*\*\* formed in the inside for a point of a mantle sheath free [ engaging and releasing to the gutter ].

[0012]

[Embodiment of the Invention]

The example of this invention is explained with reference to a drawing.

Drawing 2 shows an example of the mantle sheath 20 covered by the flexible insertion section 11 of an endoscope 10 and its endoscope 10 free [ attachment and detachment ]. In addition, a cross section is illustrated and, as for the mantle sheath 20, the appearance is illustrating, as for the endoscope 10.

[0013]

The point body 13 with which the observation-port 14 grade has been arranged is connected at the tip of the flexible insertion section 11 of an endoscope 10, and the end face of the flexible insertion section 11 is connected with the lower limit of a control unit 15.

[0014]

Inside the flexible insertion section 11, insertion arrangement of the guide channel 17 which consists of a flexible polyethylene resin tube etc. is carried out covering the overall length, it is formed in the location which the tip opening 17a biased from the core of the apical surface of the point body 13, and the end face of the guide channel 17 is open for free passage to end face side opening 17b projected and formed in the control unit 15.

[0015]

The mantle sheath 20 is covered by the flexible insertion section 11 so that an endoscope 10 may

not be polluted with a test subject's body fluid etc. in the case of endoscopy, and it is prepared so that the covering tube 21 formed in the shape of a thin cylinder with the ingredient which has the elasticity of a silicone rubber tube etc. may be covered by the flexible insertion section 11 of an endoscope 10 free [ attachment and detachment ].

[0016]

And the end cap 22 which is formed of a transparent member and inserted in point body 13 part of an endoscope 10 is attached at the tip of the covering tube 21 watertight.

[0017]

Engaging and releasing of the connector link 24 which fixed to the end face of the covering tube 21 is attained to the joining segment of the flexible insertion section 11 of an endoscope 10, and a control unit 15, and it can be fixed to a joining segment by bolting the manual fixed screw 25 at arbitration.

[0018]

Into the covering tube 21, insertion arrangement of the channel tube 23 which consists of a good ingredient of slipping like a flexible tetrafluoroethylene resin tube is carried out at the axis and the parallel direction covering the overall length.

[0019]

And connection fixing of the tip of the channel tube 23 is carried out in the end cap 22 so that opening may be carried out outside in the apical surface of an end cap 22, and end face flank part 23A of the channel tube 23 passed through the inside of a connector link 24, and has extended for a long time back.

[0020]

It can insert [ tube / 23 / channel ] freely covering an overall length in the guide channel 17 of an endoscope 10, and it can insert end face flank part 23A of the channel tube 23 in the guide channel 17 from the tip opening 17a side, and can pull it out from end face side opening 17b of the opposite side.

[0021]

Drawing 3 shows a part for the point in the condition that the mantle sheath 20 was covered by the flexible insertion section 11 of an endoscope 10, and drawing 1 omits the covering tube 21 and shows the condition that the end cap 22 was removed from the point body 13.

[0022]

As shown in drawing 3 , after the mantle sheath 20 has been covered by the flexible insertion section 11, the tip inside of an end cap 22 sticks to the tip external surface of the point body 13, and it lets the channel tube 23 of the mantle sheath 20 pass in the guide channel 17 of an endoscope 10.

[0023]

Therefore, although inserted in the point body 13 by the end cap 22 pivotable at the circumference of an axis, the rotation is regulated by inserting in the channel tube 23 in the guide channel 17.

[0024]

However, as shown in drawing 4 which illustrates an IV-IV cross section into the part which the channel tube 23 passes in the point body 13, the section near the tip of the channel tube 23 rotates to the circumference of the axis of an end cap 22, the channel deformation space 19 which can deform (it is elastic deformation mostly) is formed, it is the range as for which the channel tube 23 carries out elastic deformation in the channel deformation space 19, and an end cap 22 can rotate

around the point body 13.

[0025]

Moreover, as shown in drawing 1 etc., it becomes, and escapes from \*\*\*\*\* 28 and the gutter 18 for regulating that the point body 13 slips out back out of an end cap 22 on an end cap 22 and the point body 13, and the stop device is prepared in them.

[0026]

In this example, \*\*\*\*\* 28 projects to four places of the inner skin of an end cap 22 in the shape of L character, and is formed in them, it becomes depressed in four places of the peripheral face of the point body 13 in the shape of L character, and the gutter 18 is formed in them so that \*\*\*\*\* 28 can engage and release.

[0027]

Drawing 5 shows the engagement condition of the \*\*\*\*\* 28 and gutter 18, and by engaging with level difference partial 18a of the claw part part 28a fang furrow-like section 18 of \*\*\*\*\* 28, an end cap 22 and the point body 13 can move relatively [ direction / of an axis ], twist and escape from it, and it will be in a stop condition.

[0028]

However, since the gutter 18 is broadly formed in the hoop direction from \*\*\*\*\* 28 as shown in drawing 4 etc., by rotating an end cap 22 around the point body 13, as shown in drawing 6 , it separates from level difference partial 18a of the claw part part 28a fang furrow-like section 18 of \*\*\*\*\* 28, and will be in the omission stop discharge condition which can extract the point body 13 to back from the inside of an end cap 22.

[0029]

Thus, it sets to the equipment of the constituted example. In the usual condition that the mantle sheath 20 is covered by the flexible insertion section 11, and the special load is not added to the end cap 22 As are shown in drawing 7 , and the channel tube 23 is straight almost in parallel with the axis of an end cap 22 with self elasticity in the channel deformation space 19 and is shown in drawing 5 , the omission stop condition which engages with the \*\*\*\*\* 28 fang-furrow-like section 18 is maintained.

[0030]

And if an end cap 22 is rotated around the point body 13 from the condition, it is followed, as shown in drawing 8 , while the channel tube 23 carries out elastic deformation in the channel deformation space 19, it rotates, and it will be in the omission stop discharge condition from which the engagement to \*\*\*\*\* 28 and a gutter 18 separated as [ show / in drawing 6 ], and the flexible insertion section 11 can be extracted from the mantle sheath 20 to back.

[0031]

In addition, since a part for the corner at the tip of \*\*\*\*\* 28 is formed in the shape of a slant face in case the mantle sheath 20 is covered in the flexible insertion section 11, it is smoothly introduced in the \*\*\*\*\* 28 fang-furrow-like section 18.

[0032]

Moreover, although the channel tube 23 will be in the elastic-deformation condition shown in the channel deformation space 19 at drawing 8 in that case, the channel tube 23 returns to the usual straight condition shown in drawing 7 with self elasticity, is shown in drawing 5 , escapes from after engagement to \*\*\*\*\* 28 and a gutter 18, and it will be in a stop condition.

[0033]

In addition, this invention is not limited to the above-mentioned example, and even if it is equipment currently formed in the groove dented from the outside surface of the flexible insertion section 11, without carrying out insertion arrangement of the guide channel 17 into the flexible insertion section 11, it can apply this invention like an above-mentioned example.

[0034]

[Effect of the Invention]

Since it is carried out by rotating a part for the point of a mantle sheath to the circumference of an axis to a part for the point of the flexible insertion section in the range in which a channel tube carries out [ engaging and releasing of a stop device ] elastic deformation of the amount of [ of the flexible insertion section ] point slipping out of the point part of a mantle sheath into channel deformation space by escaping for regulating according to this invention , it can escape without a possibility may damage a member and a stop device can be made to engage and release certainly .

[Brief Description of the Drawings]

[Drawing 1] It is the perspective view in which omitting a part and showing the condition that the mantle sheath was removed, from the flexible insertion section of the endoscope with a mantle sheath of the example of this invention.

[Drawing 2] It is a side-face part sectional view in the condition that the flexible insertion section and the mantle sheath of an endoscope with a mantle sheath of this invention were separated. [ of an example ]

[Drawing 3] It is a side-face sectional view for a point in the condition that the mantle sheath was covered by the flexible insertion section of the endoscope with a mantle sheath of the example of this invention.

[Drawing 4] It is an IV-IV sectional view in drawing 3 of the example of this invention.

[Drawing 5] The example of this invention falls out and it is the side-face sectional view of the engagement condition of a stop device.

[Drawing 6] The example of this invention falls out and it is the side-face sectional view of the discharge condition of a stop device.

[Drawing 7] It is the side-face sectional view showing the condition of the channel tube in the channel deformation space in the normal state of the example of this invention.

[Drawing 8] It is the side-face sectional view showing the condition of the channel tube in the channel deformation space at the time of the example of this invention falling out and making a stop device engage and release.

[Description of Notations]

10 Endoscope

11 Flexible Insertion Section

13 Point Body (a Part for Point)

17 Guide Channel

18 Gutter (Escaping Stop Device)

18a Level difference part

19 Channel Deformation Space

20 Mantle Sheath

21 Covering Tube

22 End Cap

23 Channel Tube

28 \*\*\*\*\* (Escaping Stop Device)

28a A part for a claw part

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## TECHNICAL FIELD

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[Field of the Invention] This invention relates to the endoscope with a mantle sheath which has a mantle sheath for preventing that the flexible insertion section of an endoscope is polluted.

[0002]

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## PRIOR ART

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[Description of the Prior Art]

What is necessary is to cover a mantle sheath in the flexible insertion section of an endoscope, and just to exchange the mantle sheath for every one endoscopy, in order to make it infection between patients not occur through an endoscope in endoscopy.

[0003]

And in order to enable it to use treatment implements in the case of endoscopy, it is constituted so that the guide slot which prepared the channel tube for letting treatment implements pass in the mantle sheath, and was established in the flexible insertion section side may let a channel tube pass.

[0004]

It is necessary to make it the amount of [ of the mantle sheath covered there ] point not move in such an endoscope with a mantle sheath to a part for the point of the flexible insertion section by which the observation port etc. is arranged during endoscopy.

[0005]

Then, conventionally, become, escape from the pawl device for regulating that the amount of [ of the flexible insertion section ] point slips out to back out of the tip of a mantle sheath, and a stop device is established. In case the flexible insertion section was extracted from a mantle sheath after endoscopy termination, he was trying for engagement of a pawl device to separate by crushing from an outside the point material of the mantle sheath formed in the shape of a cap, and making elastic deformation carry out in the direction of a path (for example, the patent reference 1, patent reference 2).

[0006]

[Patent reference 1]

JP,3-193023,A

[Patent reference 2]

JP,7-33301,U

[0007]

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## EFFECT OF THE INVENTION

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[Effect of the Invention]

Since it is carried out by rotating a part for the point of a mantle sheath to the circumference of an axis to a part for the point of the flexible insertion section in the range in which a channel tube



carries out [ engaging and releasing of a stop device ] elastic deformation of the amount of [ of the flexible insertion section ] point slipping out out of the point part of a mantle sheath into channel deformation space by escaping for regulating according to this invention , it can escape without a possibility may damage a member and a stop device can be made to engage and release certainly .

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## TECHNICAL PROBLEM

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[Problem(s) to be Solved by the Invention]

However, when removing engagement of a pawl device and elastic deformation of the point material of the mantle sheath formed in the shape of a cap was crushed and carried out from the outside, there was a case a force degree may not be known and engagement not only may not separate well, but where the force entered too much and a part for the point of a mantle sheath was damaged.

[0008]

Then, it escapes from this invention for regulating that the amount of [ of the flexible insertion section ] point slips out out of the point part of a mantle sheath, and it aims a stop device at certain and offering the endoscope with a mantle sheath which damages a member and which can be made to be afraid and engage and release.

[0009]

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## MEANS

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[Means for Solving the Problem]

In order to attain the above-mentioned purpose, the endoscope with a mantle sheath of this invention Insertion arrangement of the channel tube is carried out into the mantle sheath covered by the flexible insertion section of an endoscope free [ attachment and detachment ], and the tip of a channel tube fixes at the tip of a mantle sheath. While the guide slot where it lets a channel tube pass in the condition that the mantle sheath was covered by the flexible insertion section is established in the flexible insertion section In the endoscope with a mantle sheath with which it escaped for regulating that the amount of [ of the flexible insertion section ] point slips out out of the point part of a mantle sheath, and the stop device was established While constituting a part for the point of a mantle sheath in the predetermined range pivotable in the circumference of an axis to a part for the point of the flexible insertion section The channel deformation space for rotating, while the rotation actuation is followed and the section near the tip of a channel tube carries out elastic deformation is prepared. It escapes by rotating a part for the point of a mantle sheath in the predetermined range to the circumference of an axis to a part for the point of the flexible insertion section, and is made for a stop device to engage and release.

[0010]

In addition, the condition that a mantle sheath is covered by the flexible insertion section, and falls out with the elasticity of a channel tube in the state of a no-load, and a stop device is engaged is maintained. By rotating a part for the point of a mantle sheath in the predetermined range to the circumference of an axis to a part for the point of the flexible insertion section, carrying out elastic deformation of the channel tube in channel deformation space You may make it be in the condition that it escapes, engagement of a stop device separates and it can slip out of a part for the point of

the flexible insertion section from the inside of the point part of a mantle sheath.

[0011]

And you may have the gutter of the shape of L character by which the stop device was formed in the external surface for a point of the flexible insertion section from which it escapes, and \*\*\*\*\* formed in the inside for a point of a mantle sheath free [ engaging and releasing to the gutter ].

[0012]

[Embodiment of the Invention]

The example of this invention is explained with reference to a drawing.

Drawing 2 shows an example of the mantle sheath 20 covered by the flexible insertion section 11 of an endoscope 10 and its endoscope 10 free [ attachment and detachment ]. In addition, a cross section is illustrated and, as for the mantle sheath 20, the appearance is illustrated, as for the endoscope 10.

[0013]

The point body 13 with which the observation-port 14 grade has been arranged is connected at the tip of the flexible insertion section 11 of an endoscope 10, and the end face of the flexible insertion section 11 is connected with the lower limit of a control unit 15.

[0014]

Inside the flexible insertion section 11, insertion arrangement of the guide channel 17 which consists of a flexible polyethylene resin tube etc. is carried out covering the overall length, it is formed in the location which the tip opening 17a biased from the core of the apical surface of the point body 13, and the end face of the guide channel 17 is open for free passage to end face side opening 17b projected and formed in the control unit 15.

[0015]

The mantle sheath 20 is covered by the flexible insertion section 11 so that an endoscope 10 may not be polluted with a test subject's body fluid etc. in the case of endoscopy, and it is prepared so that the covering tube 21 formed in the shape of a thin cylinder with the ingredient which has the elasticity of a silicone rubber tube etc. may be covered by the flexible insertion section 11 of an endoscope 10 free [ attachment and detachment ].

[0016]

And the end cap 22 which is formed of a transparent member and inserted in point body 13 part of an endoscope 10 is attached at the tip of the covering tube 21 watertight.

[0017]

Engaging and releasing of the connector link 24 which fixed to the end face of the covering tube 21 is attained to the joining segment of the flexible insertion section 11 of an endoscope 10, and a control unit 15, and it can be fixed to a joining segment by bolting the manual fixed screw 25 at arbitration.

[0018]

Into the covering tube 21, insertion arrangement of the channel tube 23 which consists of a good ingredient of slipping like a flexible tetrafluoroethylene resin tube is carried out at the axis and the parallel direction covering the overall length.

[0019]

And connection fixing of the tip of the channel tube 23 is carried out in the end cap 22 so that opening may be carried out outside in the apical surface of an end cap 22, and end face flank part 23A of the channel tube 23 passed through the inside of a connector link 24, and has extended for

a long time back.

[0020]

It can insert [ tube / 23 / channel ] freely covering an overall length in the guide channel 17 of an endoscope 10, and it can insert end face flank part 23A of the channel tube 23 in the guide channel 17 from the tip opening 17a side, and can pull it out from end face side opening 17b of the opposite side.

[0021]

Drawing 3 shows a part for the point in the condition that the mantle sheath 20 was covered by the flexible insertion section 11 of an endoscope 10, and drawing 1 omits the covering tube 21 and shows the condition that the end cap 22 was removed from the point body 13.

[0022]

As shown in drawing 3 , after the mantle sheath 20 has been covered by the flexible insertion section 11, the tip inside of an end cap 22 sticks to the tip external surface of the point body 13, and it lets the channel tube 23 of the mantle sheath 20 pass in the guide channel 17 of an endoscope 10.

[0023]

Therefore, although inserted in the point body 13 by the end cap 22 pivotable at the circumference of an axis, the rotation is regulated by inserting in the channel tube 23 in the guide channel 17.

[0024]

However, as shown in drawing 4 which illustrates an IV-IV cross section into the part which the channel tube 23 passes in the point body 13, the section near the tip of the channel tube 23 rotates to the circumference of the axis of an end cap 22, the channel deformation space 19 which can deform (it is elastic deformation mostly) is formed, it is the range as for which the channel tube 23 carries out elastic deformation in the channel deformation space 19, and an end cap 22 can rotate around the point body 13.

[0025]

Moreover, as shown in drawing 1 etc., it becomes, and escapes from \*\*\*\*\* 28 and the gutter 18 for regulating that the point body 13 slips out back out of an end cap 22 on an end cap 22 and the point body 13, and the stop device is prepared in them.

[0026]

In this example, \*\*\*\*\* 28 projects to four places of the inner skin of an end cap 22 in the shape of L character, and is formed in them, it becomes depressed in four places of the peripheral face of the point body 13 in the shape of L character, and the gutter 18 is formed in them so that \*\*\*\*\* 28 can engage and release.

[0027]

Drawing 5 shows the engagement condition of the \*\*\*\*\* 28 and gutter 18, and by engaging with level difference partial 18a of the claw part part 28a fang furrow-like section 18 of \*\*\*\*\* 28, an end cap 22 and the point body 13 can move relatively [ direction / of an axis ], twist and escape from it, and it will be in a stop condition.

[0028]

However, since the gutter 18 is broadly formed in the hoop direction from \*\*\*\*\* 28 as shown in drawing 4 etc., by rotating an end cap 22 around the point body 13, as shown in drawing 6 , it separates from level difference partial 18a of the claw part part 28a fang furrow-like section 18 of \*\*\*\*\* 28, and will be in the omission stop discharge condition which can extract the point body

13 to back from the inside of an end cap 22.

[0029]

Thus, it sets to the equipment of the constituted example. In the usual condition that the mantle sheath 20 is covered by the flexible insertion section 11, and the special load is not added to the end cap 22 As are shown in drawing 7 , and the channel tube 23 is straight almost in parallel with the axis of an end cap 22 with self elasticity in the channel deformation space 19 and is shown in drawing 5 , the omission stop condition which engages with the \*\*\*\*\* 28 fang-furrow-like section 18 is maintained.

[0030]

And if an end cap 22 is rotated around the point body 13 from the condition, it is followed, as shown in drawing 8 , while the channel tube 23 carries out elastic deformation in the channel deformation space 19, it rotates, and it will be in the omission stop discharge condition from which the engagement to \*\*\*\*\* 28 and a gutter 18 separated as [ show / in drawing 6 ], and the flexible insertion section 11 can be extracted from the mantle sheath 20 to back.

[0031]

In addition, since a part for the corner at the tip of \*\*\*\*\* 28 is formed in the shape of a slant face in case the mantle sheath 20 is covered in the flexible insertion section 11, it is smoothly introduced in the \*\*\*\*\* 28 fang-furrow-like section 18.

[0032]

Moreover, although the channel tube 23 will be in the elastic-deformation condition shown in the channel deformation space 19 at drawing 8 in that case, the channel tube 23 returns to the usual straight condition shown in drawing 7 with self elasticity, is shown in drawing 5 , escapes from after engagement to \*\*\*\*\* 28 and a gutter 18, and it will be in a stop condition.

[0033]

In addition, this invention is not limited to the above-mentioned example, and even if it is equipment currently formed in the groove dented from the outside surface of the flexible insertion section 11, without carrying out insertion arrangement of the guide channel 17 into the flexible insertion section 11, it can apply this invention like an above-mentioned example.

[0034]

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the perspective view in which omitting a part and showing the condition that the mantle sheath was removed, from the flexible insertion section of the endoscope with a mantle sheath of the example of this invention.

[Drawing 2] It is a side-face part sectional view in the condition that the flexible insertion section and the mantle sheath of an endoscope with a mantle sheath of this invention were separated. [ of an example ]

[Drawing 3] It is a side-face sectional view for a point in the condition that the mantle sheath was covered by the flexible insertion section of the endoscope with a mantle sheath of the example of this invention.

[Drawing 4] It is an IV-IV sectional view in drawing 3 of the example of this invention.

[Drawing 5] The example of this invention falls out and it is the side-face sectional view of the

engagement condition of a stop device.

[Drawing 6] The example of this invention falls out and it is the side-face sectional view of the discharge condition of a stop device.

[Drawing 7] It is the side-face sectional view showing the condition of the channel tube in the channel deformation space in the normal state of the example of this invention.

[Drawing 8] It is the side-face sectional view showing the condition of the channel tube in the channel deformation space at the time of the example of this invention falling out and making a stop device engage and release.

[Description of Notations]

10 Endoscope

11 Flexible Insertion Section

13 Point Body (a Part for Point)

17 Guide Channel

18 Gutter (Escaping Stop Device)

18a Level difference part

19 Channel Deformation Space

20 Mantle Sheath

21 Covering Tube

22 End Cap

23 Channel Tube

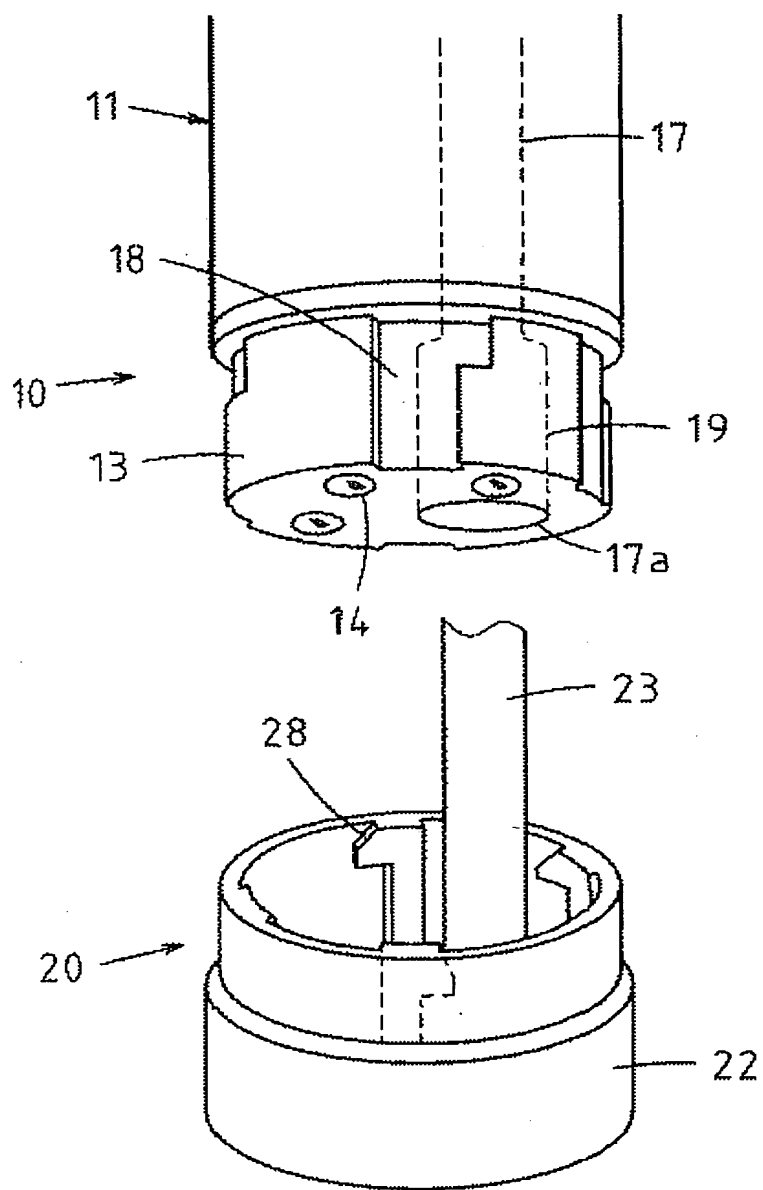
28 \*\*\*\*\* (Escaping Stop Device)

28a A part for a claw part

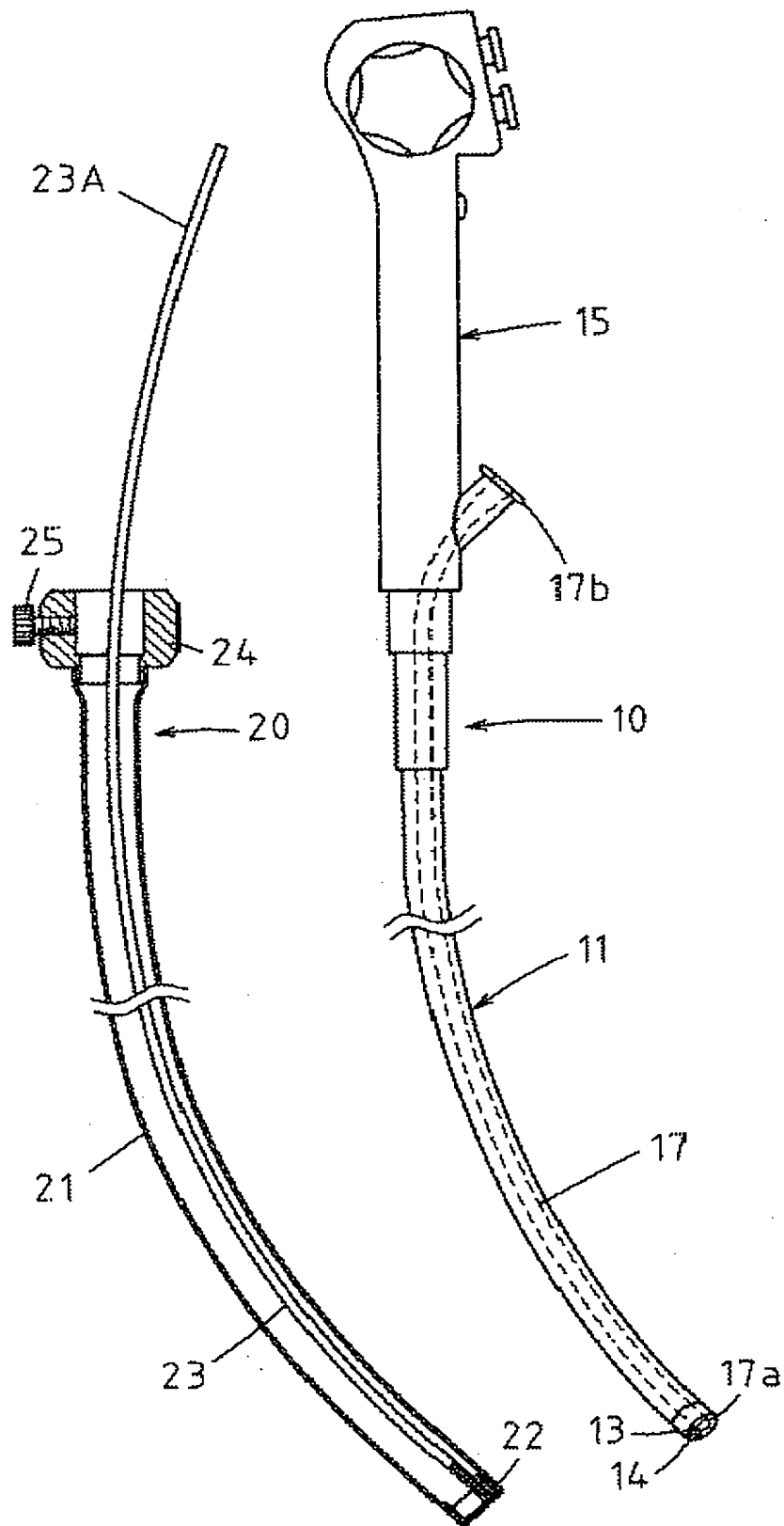
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## DRAWINGS

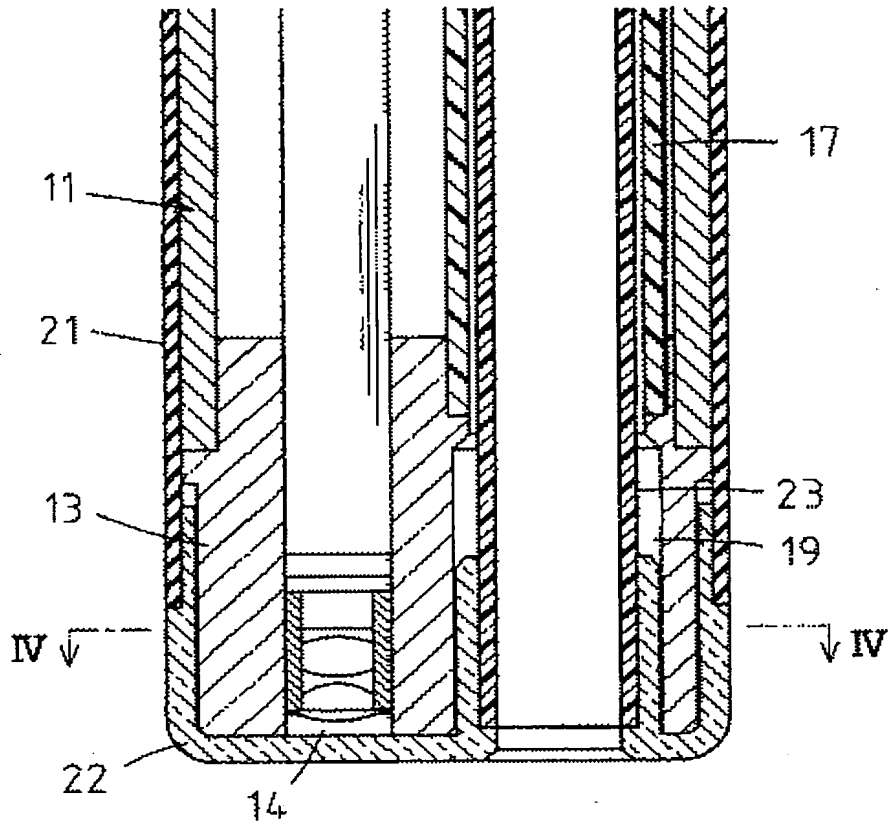
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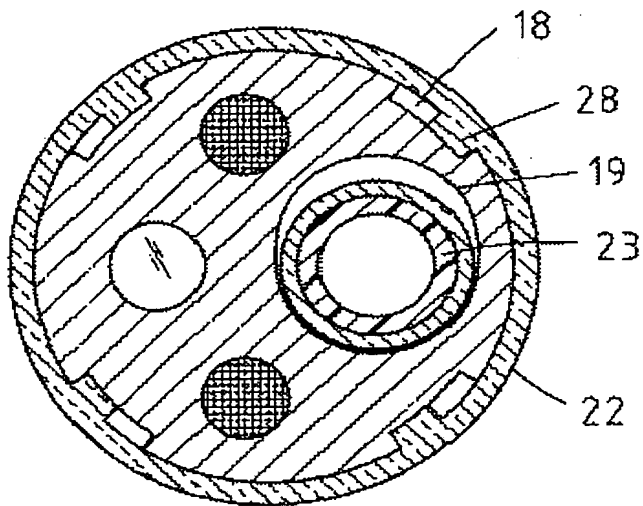
[Drawing 1]



[Drawing 2]

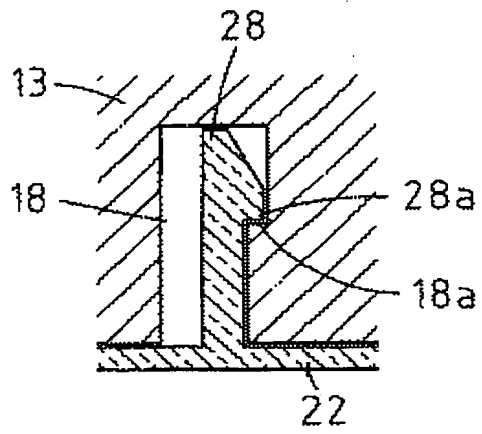


[Drawing 3]

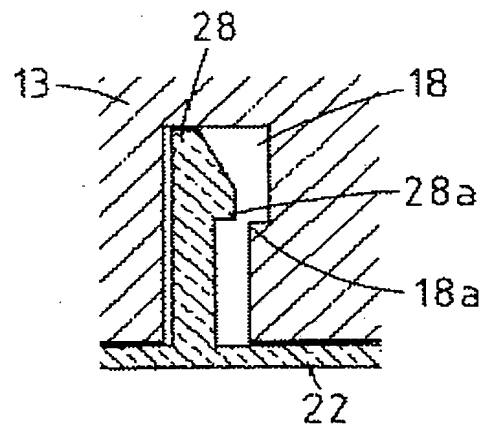


[Drawing 4]

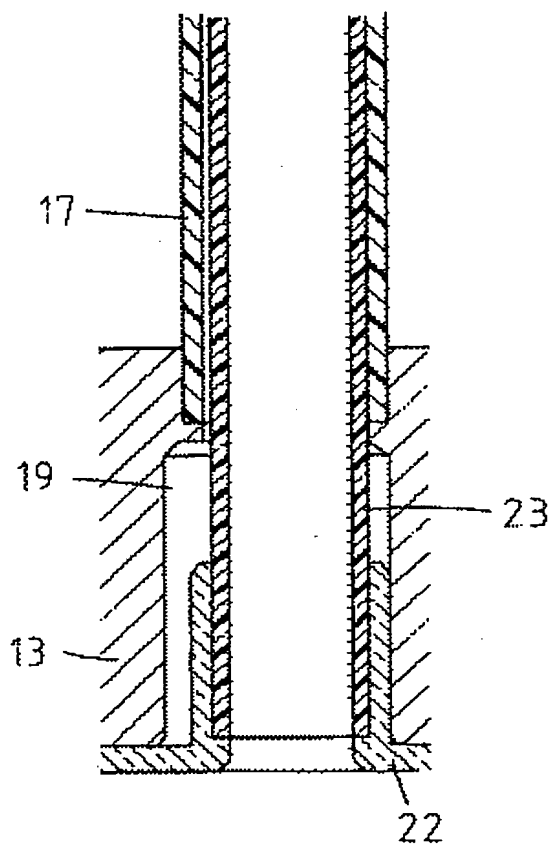




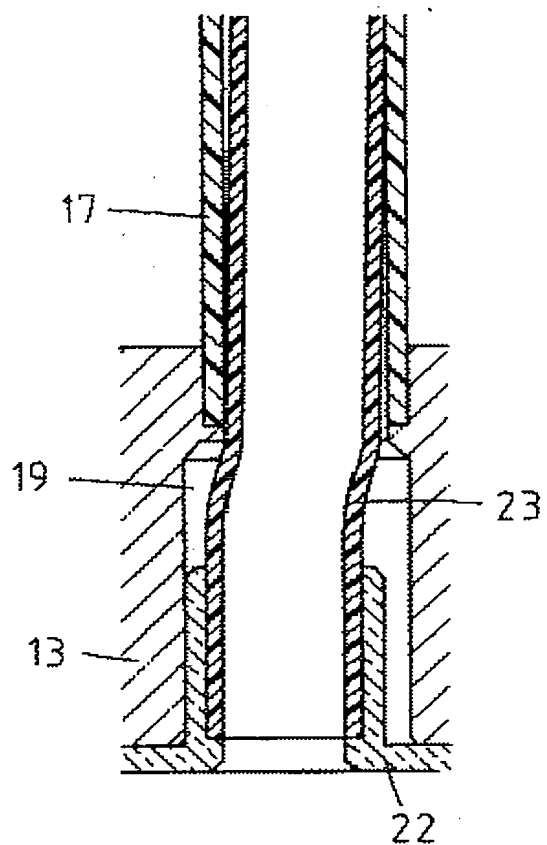
[Drawing 5]



[Drawing 6]



[Drawing 7]



[Drawing 8]